

ANNUAL INDEX, 1989

AUTHORS

Akasofu, Syun-Ichi. THE DYNAMIC AURORA; May, page 90.

Alkon, Daniel L. MEMORY STORAGE AND NEURAL SYSTEMS; July, page 42.

Alson, Jeffrey A., and Charles L. Gray, Jr. THE CASE FOR METHANOL; November, page 108.

Armbuster, Peter, and Gottfried Münzenberg. CREATING SUPERHEAVY ELEMENTS; May, page 66.

Arnold, Wilfred Niels. ABSINTHE; June, page 112.

Badash, Lawrence. THE AGE-OF-THE-EARTH DEBATE; August, page 90.

Banks, Peter M., and Sally K. Ride. SOVIETS IN SPACE; February, page 32.

Barrett, Spencer C. H. WATERWEED INVASIONS; October, page 90.

Beehler, Bruce M. THE BIRDS OF PARADISE; December, page 116.

Berger, Suzanne, Michael L. Dertouzos, Richard K. Lester, Robert M. Solow and Lester C. Thurow. TOWARD A NEW INDUSTRIAL AMERICA; June, page 39.

Bern, Marshall W., and Ronald L. Graham. THE SHORTEST-NETWORK PROBLEM; January, page 84.

Berner, Robert A., and Antonio C. Lasaga. MODELING THE GEOCHEMICAL CARBON CYCLE; March, page 74.

Blair, Peter D., John H. Gibbons and Holly L. Gwin. STRATEGIES FOR ENERGY USE; September, page 136.

Bloxham, Jeremy, and David Gubbins. THE EVOLUTION OF THE EARTH'S MAGNETIC FIELD; December, page 68.

Borg, Erik, and S. Allen Counter. THE MIDDLE-EAR MUSCLES; August, page 74.

Bracewell, Ronald N. THE FOURIER TRANSFORM; June, page 86.

Bürgin, Toni, Olivier Rieppel, P. Martin Sander and Karl Tschanz. THE FOSSES OF MONTE SAN GIORGIO; June, page 74.

Buus, Søren, Howard M. Grey and Alessandro Sette. HOW T CELLS SEE ANTIGEN; November, page 56.

Carter, Ashton B. TESTING WEAPONS IN SPACE; July, page 33.

Clark, William C. MANAGING PLANET EARTH; September, page 46.

Coates, John F. THE TRIREME SAILS AGAIN; April, page 96.

Coles, John M. THE WORLD'S OLDEST ROAD; November, page 100.

Colinvaux, Paul A. THE PAST AND FUTURE AMAZON; May, page 102.

Counter, S. Allen, and Erik Borg. THE MIDDLE-EAR MUSCLES; August, page 74.

Crosson, Pierre R., and Norman J. Rosenberg. STRATEGIES FOR AGRICULTURE; September, page 128.

Crutzen, Paul J., and Thomas E. Graedel. THE CHANGING ATMOSPHERE; September, page 58.

Cyert, Richard M., and David C. Mowery. TECHNOLOGY, EMPLOYMENT AND U.S. COMPETITIVENESS; May, page 58.

Daniels, Edward J., Robert F. Giese and Alan M. Wolsky. THE NEW SUPERCONDUCTORS: PROSPECTS FOR APPLICATIONS; February, page 60.

Dawson, John M. PLASMA PARTICLE ACCELERATORS; March, page 54.

Delamoir, Jeannette, and Grant B. Romer. THE FIRST COLOR PHOTOGRAPHS; December, page 88.

del Pino, Eugenia M. MARSUPIAL FROGS; May, page 110.

Dertouzos, Michael L., Suzanne Berger, Richard K. Lester, Robert M. Solow and Lester C. Thurow. TOWARD A NEW INDUSTRIAL AMERICA; June, page 39.

Despain, Don G., and William H. Romme. THE YELLOWSTONE FIRES; November, page 36.

DeVorkin, David H. HENRY NORRIS RUSSELL; May, page 126.

Duncan, Michael A., and Dennis H. Rouvray. MICROCLUSTERS; December, page 110.

Edelman, Gerald M. TOPOBIOLOGY; May, page 76.

Frazier, John M., and Alan M. Goldberg. ALTERNATIVES TO ANIMALS IN TOXICITY TESTING; August, page 24.

Freund, Henry P., and Robert K. Parker. FREE-ELECTRON LASERS; April, page 84.

Frohlich, Cliff. DEEP EARTHQUAKES; January, page 48.

Frosch, Robert A., and Nicholas E. Gallopoulos. STRATEGIES FOR MANUFACTURING; September, page 144.

Funk, David H. THE MATING OF TREE CRICKETS; August, page 50.

Gallopoulos, Nicholas E., and Robert A. Frosch. STRATEGIES FOR MANUFACTURING; September, page 144.

Gelernter, David. THE METAMORPHOSIS OF INFORMATION MANAGEMENT; August, page 66.

Gibbons, John H., Peter D. Blair and Holly L. Gwin. STRATEGIES FOR ENERGY USE; September, page 136.

Giese, Robert F., Edward J. Daniels and Alan M. Wolsky. THE NEW SUPERCONDUCTORS: PROSPECTS FOR APPLICATIONS; February, page 60.

Goldberg, Alan M., and John M. Frazier. ALTERNATIVES TO ANIMALS IN TOXICITY TESTING; August, page 24.

Graedel, Thomas E., and Paul J. Crutzen. THE CHANGING ATMOSPHERE; September, page 58.

Graham, Ronald L., and Marshall W. Bern. THE SHORTEST-NETWORK PROBLEM; January, page 84.

Gray, Jr., Charles L., and Jeffrey A. Alson. THE CASE FOR METHANOL; November, page 108.

Graybeal, Sidney N., and Patricia Bliss McFate. GETTING OUT OF THE STARTING BLOCK; December, page 61.

Grey, Howard M., Søren Buus and Alessandro Sette. HOW T CELLS SEE ANTIGEN; November, page 56.

Gubbins, David, and Jeremy Bloxham. THE EVOLUTION OF THE EARTH'S MAGNETIC FIELD; December, page 68.

Gwin, Holly L., Peter D. Blair and John H. Gibbons. STRATEGIES FOR ENERGY USE; September, page 136.

Hauck, George F. W. THE ROMAN AQUEDUCT OF NIMES; March, page 98.

Holliday, Robin. A DIFFERENT KIND OF INHERITANCE; June, page 60.

Houghton, Richard A., and George M. Woodwell. GLOBAL CLIMATIC CHANGE; April, page 36.

Houston, Stephen D., and David Stuart. MAYA WRITING; August, page 82.

Hunton, Donald E. SHUTTLE GLOW; November, page 92.

Imry, Yoseph, and Richard A. Webb. QUANTUM INTERFERENCE AND THE AHARONOV-BOHM EFFECT; April, page 56.

Johanson, Conrad E., and Reynold Spector. THE MAMMALIAN CHOROID PLEXUS; November, page 68.

Kalil, Ronald E. SYNAPSE FORMATION IN THE DEVELOPING BRAIN; December, page 76.

Kartner, Norbert, and Victor Ling. MULTIDRUG RESISTANCE IN CANCER; March, page 44.

Katzir, Abraham. OPTICAL FIBERS IN MEDICINE; May, page 120.

Kerr, George T. SYNTHETIC ZEOLITES; July, page 100.

Keyfitz, Nathan. THE GROWING HUMAN POPULATION; September, page 118.

Kimelberg, Harold K., and Michael D. Norenberg. ASTROCYTES; April, page 66.

Kinoshita, June. NEPTUNE; November, page 82.

Kyle, Chester R., Paul B. MacCready and Howard G. Wilson. LESSONS OF SUNRAYCER; March, page 90.

la Rivière, J. W. Maurits. THREATS TO THE WORLD'S WATER; September, page 80.

ANNUAL INDEX, 1989

AUTHORS

Akasofu, Syun-Ichi. THE DYNAMIC AURORA; May, page 90.

Alkon, Daniel L. MEMORY STORAGE AND NEURAL SYSTEMS; July, page 42.

Alson, Jeffrey A., and Charles L. Gray, Jr. THE CASE FOR METHANOL; November, page 108.

Armbuster, Peter, and Gottfried Münzenberg. CREATING SUPERHEAVY ELEMENTS; May, page 66.

Arnold, Wilfred Niels. ABSINTHE; June, page 112.

Badash, Lawrence. THE AGE-OF-THE-EARTH DEBATE; August, page 90.

Banks, Peter M., and Sally K. Ride. SOVIETS IN SPACE; February, page 32.

Barrett, Spencer C. H. WATERWEED INVASIONS; October, page 90.

Beehler, Bruce M. THE BIRDS OF PARADISE; December, page 116.

Berger, Suzanne, Michael L. Dertouzos, Richard K. Lester, Robert M. Solow and Lester C. Thurow. TOWARD A NEW INDUSTRIAL AMERICA; June, page 39.

Bern, Marshall W., and Ronald L. Graham. THE SHORTEST-NETWORK PROBLEM; January, page 84.

Berner, Robert A., and Antonio C. Lasaga. MODELING THE GEOCHEMICAL CARBON CYCLE; March, page 74.

Blair, Peter D., John H. Gibbons and Holly L. Gwin. STRATEGIES FOR ENERGY USE; September, page 136.

Bloxham, Jeremy, and David Gubbins. THE EVOLUTION OF THE EARTH'S MAGNETIC FIELD; December, page 68.

Borg, Erik, and S. Allen Counter. THE MIDDLE-EAR MUSCLES; August, page 74.

Bracewell, Ronald N. THE FOURIER TRANSFORM; June, page 86.

Bürgin, Toni, Olivier Rieppel, P. Martin Sander and Karl Tschanz. THE FOSSES OF MONTE SAN GIORGIO; June, page 74.

Buus, Søren, Howard M. Grey and Alessandro Sette. HOW T CELLS SEE ANTIGEN; November, page 56.

Carter, Ashton B. TESTING WEAPONS IN SPACE; July, page 33.

Clark, William C. MANAGING PLANET EARTH; September, page 46.

Coates, John F. THE TRIREME SAILS AGAIN; April, page 96.

Coles, John M. THE WORLD'S OLDEST ROAD; November, page 100.

Colinvaux, Paul A. THE PAST AND FUTURE AMAZON; May, page 102.

Counter, S. Allen, and Erik Borg. THE MIDDLE-EAR MUSCLES; August, page 74.

Crosson, Pierre R., and Norman J. Rosenberg. STRATEGIES FOR AGRICULTURE; September, page 128.

Crutzen, Paul J., and Thomas E. Graedel. THE CHANGING ATMOSPHERE; September, page 58.

Cyert, Richard M., and David C. Mowery. TECHNOLOGY, EMPLOYMENT AND U.S. COMPETITIVENESS; May, page 58.

Daniels, Edward J., Robert F. Giese and Alan M. Wolsky. THE NEW SUPERCONDUCTORS: PROSPECTS FOR APPLICATIONS; February, page 60.

Dawson, John M. PLASMA PARTICLE ACCELERATORS; March, page 54.

Delamoir, Jeannette, and Grant B. Romer. THE FIRST COLOR PHOTOGRAPHS; December, page 88.

del Pino, Eugenia M. MARSUPIAL FROGS; May, page 110.

Dertouzos, Michael L., Suzanne Berger, Richard K. Lester, Robert M. Solow and Lester C. Thurow. TOWARD A NEW INDUSTRIAL AMERICA; June, page 39.

Despain, Don G., and William H. Romme. THE YELLOWSTONE FIRES; November, page 36.

DeVorkin, David H. HENRY NORRIS RUSSELL; May, page 126.

Duncan, Michael A., and Dennis H. Rouvray. MICROCLUSTERS; December, page 110.

Edelman, Gerald M. TOPOBIOLOGY; May, page 76.

Frazier, John M., and Alan M. Goldberg. ALTERNATIVES TO ANIMALS IN TOXICITY TESTING; August, page 24.

Freud, Henry P., and Robert K. Parker. FREE-ELECTRON LASERS; April, page 84.

Frohlich, Cliff. DEEP EARTHQUAKES; January, page 48.

Frosch, Robert A., and Nicholas E. Gallopoulos. STRATEGIES FOR MANUFACTURING; September, page 144.

Funk, David H. THE MATING OF TREE CRICKETS; August, page 50.

Gallopoulos, Nicholas E., and Robert A. Frosch. STRATEGIES FOR MANUFACTURING; September, page 144.

Gelernter, David. THE METAMORPHOSIS OF INFORMATION MANAGEMENT; August, page 66.

Gibbons, John H., Peter D. Blair and Holly L. Gwin. STRATEGIES FOR ENERGY USE; September, page 136.

Giese, Robert F., Edward J. Daniels and Alan M. Wolsky. THE NEW SUPERCONDUCTORS: PROSPECTS FOR APPLICATIONS; February, page 60.

Goldberg, Alan M., and John M. Frazier. ALTERNATIVES TO ANIMALS IN TOXICITY TESTING; August, page 24.

Graedel, Thomas E., and Paul J. Crutzen. THE CHANGING ATMOSPHERE; September, page 58.

Graham, Ronald L., and Marshall W. Bern. THE SHORTEST-NETWORK PROBLEM; January, page 84.

Gray, Jr., Charles L., and Jeffrey A. Alson. THE CASE FOR METHANOL; November, page 108.

Graybeal, Sidney N., and Patricia Bliss McFate. GETTING OUT OF THE STARTING BLOCK; December, page 61.

Grey, Howard M., Søren Buus and Alessandro Sette. HOW T CELLS SEE ANTIGEN; November, page 56.

Gubbins, David, and Jeremy Bloxham. THE EVOLUTION OF THE EARTH'S MAGNETIC FIELD; December, page 68.

Gwin, Holly L., Peter D. Blair and John H. Gibbons. STRATEGIES FOR ENERGY USE; September, page 136.

Hauck, George F. W. THE ROMAN AQUEDUCT OF NIMES; March, page 98.

Holliday, Robin. A DIFFERENT KIND OF INHERITANCE; June, page 60.

Houghton, Richard A., and George M. Woodwell. GLOBAL CLIMATIC CHANGE; April, page 36.

Houston, Stephen D., and David Stuart. MAYA WRITING; August, page 82.

Hunton, Donald E. SHUTTLE GLOW; November, page 92.

Imry, Yoseph, and Richard A. Webb. QUANTUM INTERFERENCE AND THE AHARONOV-BOHM EFFECT; April, page 56.

Johanson, Conrad E., and Reynold Spector. THE MAMMALIAN CHOROID PLEXUS; November, page 68.

Kalil, Ronald E. SYNAPSE FORMATION IN THE DEVELOPING BRAIN; December, page 76.

Kartner, Norbert, and Victor Ling. MULTIDRUG RESISTANCE IN CANCER; March, page 44.

Katzir, Abraham. OPTICAL FIBERS IN MEDICINE; May, page 120.

Kerr, George T. SYNTHETIC ZEOLITES; July, page 100.

Keyfitz, Nathan. THE GROWING HUMAN POPULATION; September, page 118.

Kimelberg, Harold K., and Michael D. Norenberg. ASTROCYTES; April, page 66.

Kinoshita, June. NEPTUNE; November, page 82.

Kyle, Chester R., Paul B. MacCready and Howard G. Wilson. LESSONS OF SUNRAYCER; March, page 90.

la Rivière, J. W. Maurits. THREATS TO THE WORLD'S WATER; September, page 80.

Lasaga, Antonio C., and Robert A. Berner. MODELING THE GEOCHEMICAL CARBON CYCLE; March, page 74.

Lester, Richard K., Suzanne Berger, Michael L. Dertouzos, Robert M. Solow and Lester C. Thurow. TOWARD A NEW INDUSTRIAL AMERICA; June, page 39.

Ling, Victor, and Norbert Kartner. MULTIDRUG RESISTANCE IN CANCER; March, page 44.

Logsdon, John M., and Ray A. Williamson. U.S. ACCESS TO SPACE; March, page 34.

MacCready, Paul B., Chester R. Kyle and Howard G. Wilson. LESSONS OF *SUNRAYCER*; March, page 90.

MacNeill, Jim. STRATEGIES FOR SUSTAINABLE ECONOMIC DEVELOPMENT; September, page 154.

Margolis, Stanley V. AUTHENTICATING ANCIENT MARBLE SCULPTURE; June, page 104.

McDonald, Kent L., and J. Richard McIntosh. THE MITOTIC SPINDLE; October, page 48.

McFate, Patricia Bliss, and Sidney N. Graybeal. GETTING OUT OF THE STARTING BLOCK; December, page 61.

McIntosh, J. Richard, and Kent L. McDonald. THE MITOTIC SPINDLE; October, page 48.

McKenzie, Dan P., and Robert S. White. VOLCANISM AT RIFTS; July, page 62.

McPherson, Alexander. MACROMOLECULAR CRYSTALS; March, page 62.

Moe, Michael K., and Simon Peter Rosen. DOUBLE-BETA DECAY; November, page 48.

Mowery, David C., and Richard M. Cyert. TECHNOLOGY, EMPLOYMENT AND U.S. COMPETITIVENESS; May, page 58.

Münzenberg, Gottfried, and Peter Armbruster. CREATING SUPERHEAVY ELEMENTS; May, page 66.

Nathans, Jeremy. THE GENES FOR COLOR VISION; February, page 42.

Newell, Reginald E., Henry G. Reichle, Jr., and Wolfgang Seiler. CARBON MONOXIDE AND THE BURNING EARTH; October, page 82.

Norenberg, Michael D., and Harold K. Kimberg. ASTROCYTES; April, page 66.

Nottebohm, Fernando. FROM BIRD SONG TO NEUROGENESIS; February, page 74.

Oldstone, Michael B. A. VIRAL ALTERATION OF CELL FUNCTION; August, page 42.

Ottino, Julio M. THE MIXING OF FLUIDS; January, page 56.

Parker, Robert K., and Henry P. Freund. FREE-ELECTRON LASERS; April, page 84.

Ptashne, Mark. HOW GENE ACTIVATORS WORK; January, page 40.

Rapoport, Judith L. THE BIOLOGY OF OBSESSIONS AND COMPULSIONS; March, page 82.

Rasmussen, Howard. THE CYCLING OF CALCIUM AS AN INTRACELLULAR MESSENGER; October, page 66.

Rees, John R. THE STANFORD LINEAR COLLIDER; October, page 58.

Reich, Robert B. THE QUIET PATH TO TECHNOLOGICAL PREEMINENCE; October, page 41.

Reichle, Jr., Henry G., Reginald E. Newell and Wolfgang Seiler. CARBON MONOXIDE AND THE BURNING EARTH; October, page 82.

Reid-Green, Keith S. THE HISTORY OF CENSUS TABULATION; February, page 98.

Renfrew, Colin. THE ORIGINS OF INDO-EUROPEAN LANGUAGES; October, page 106.

Renouf, Deane. SENSORY FUNCTION IN THE HARBOR SEAL; April, page 90.

Ride, Sally K., and Peter M. Banks. SOVIETS IN SPACE; February, page 32.

Rieppel, Olivier, Toni Bürgin, P. Martin Sander and Karl Tschanz. THE FOSSILS OF MONTE SAN GIORGIO; June, page 74.

Romer, Grant B., and Jeannette Delamo. THE FIRST COLOR PHOTOGRAPHS; December, page 88.

Romme, William H., and Don G. Despain. THE YELLOWSTONE FIRES; November, page 36.

Rosen, Simon Peter, and Michael K. Moe. DOUBLE-BETA DECAY; November, page 48.

Rosenberg, Norman J., and Pierre R. Crosson. STRATEGIES FOR AGRICULTURE; September, page 128.

Ross, Jeffrey. THE TURNOVER OF MESSENGER RNA; April, page 48.

Rouvray, Dennis H., and Michael A. Duncan. MICROCLUSTERS; December, page 110.

Ruckelshaus, William D. TOWARD A SUSTAINABLE WORLD; September, page 166.

Sander, P. Martin, Toni Bürgin, Olivier Rieppel and Karl Tschanz. THE FOSSILS OF MONTE SAN GIORGIO; June, page 74.

Schneider, Stephen H. THE CHANGING CLIMATE; September, page 70.

Seiler, Wolfgang, Reginald E. Newell and Henry G. Reichle, Jr. CARBON MONOXIDE AND THE BURNING EARTH; October, page 82.

Sette, Alessandro, Søren Buus and Howard M. Grey. HOW T CELLS SEE ANTIGEN; November, page 56.

Solow, Robert M., Suzanne Berger, Michael L. Dertouzos, Richard K. Lester and Lester C. Thurow. TOWARD A NEW INDUSTRIAL AMERICA; June, page 39.

Sørensen, Allan H., and Erik Uggerhøj. THE CHANNELING OF ELECTRONS AND POSITRONS; June, page 96.

Spector, Reynold, and Conrad E. Johanson. THE MAMMALIAN CHOROID PLEXUS; November, page 68.

Stein, Daniel L. SPIN GLASSES; July, page 52.

Stein, Ross S., and Robert S. Yeats. HIDDEN EARTHQUAKES; June, page 48.

Stuart, David, and Stephen D. Houston. MAYA WRITING; August, page 82.

Suslick, Kenneth S. THE CHEMICAL EFFECTS OF ULTRASOUND; February, page 80.

Teaford, Mark, and Alan Walker. THE HUNT FOR *PROCONSUL*; January, page 76.

Thurow, Lester C., Suzanne Berger, Michael L. Dertouzos, Richard K. Lester and Robert M. Solow. TOWARD A NEW INDUSTRIAL AMERICA; June, page 39.

Tishchenko, Artur A., and Vladimir V. Vasyutin. SPACE COLORISTICS; July, page 84.

Tschanz, Karl, Toni Bürgin, Olivier Rieppel and P. Martin Sander. THE FOSSILS OF MONTE SAN GIORGIO; June, page 74.

Turner II, Christy G. TEETH AND PREHISTORY IN ASIA; February, page 88.

Uggerhøj, Erik, and Allan H. Sørensen. THE CHANNELING OF ELECTRONS AND POSITRONS; June, page 96.

Ulansey, David. THE MITHRAIC MYSTERIES; December, page 130.

Uttal, William R. TELEOPERATORS; December, page 124.

Uvnäs-Moberg, Kerstin. THE GASTROINTESTINAL TRACT IN GROWTH AND REPRODUCTION; July, page 78.

Vasyutin, Vladimir V., and Artur A. Tishchenko. SPACE COLORISTICS; July, page 84.

Walker, Alan, and Mark Teaford. THE HUNT FOR *PROCONSUL*; January, page 76.

Weaver, Tom, and Stan Woosley. THE GREAT SUPERNOVA OF 1987; August, page 32.

Webb, Richard A., and Yoseph Imry. QUANTUM INTERFERENCE AND THE AHARONOV-BOHM EFFECT; April, page 56.

Werner, Emmy E. CHILDREN OF THE GARDEN ISLAND; April, page 106.

White, Randall. VISUAL THINKING IN THE ICE AGE; July, page 92.

White, Robert S., and Dan P. McKenzie. VOLCANISM AT RIFTS; July, page 62.

Whitehead, John A. GIANT OCEAN CATASTROPHES; February, page 50.

Wickramasinghe, H. Kumar. SCANNED-PROBE MICROSCOPES; October, page 98.

Wiesner, Jerome B. ON SCIENCE ADVICE

TO THE PRESIDENT; January, page 34.

Williams, L. Pearce. ANDRÉ-MARIE AMPÈRE; January, page 90.

Williamson, Ray A., and John M. Logsdon. U.S. ACCESS TO SPACE; March, page 34.

Wilson, Edward O. THREATS TO BIODIVERSITY; September, page 108.

Wilson, Howard G., Chester R. Kyle and Paul B. MacCready. LESSONS OF SUNRAYCER; March, page 90.

Wolsky, Alan M., Edward J. Daniels and Robert F. Giese. THE NEW SUPERCONDUCTORS: PROSPECTS FOR APPLICATIONS; February, page 60.

Woodwell, George M., and Richard A. Houghton. GLOBAL CLIMATIC CHANGE; April, page 36.

Woolsey, Stan, and Tom Weaver. THE GREAT SUPERNOVA OF 1987; August, page 32.

Wurtman, Richard J., and Judith J. Wurtman. CARBOHYDRATES AND DEPRESSION; January, page 68.

Wurtman, Judith J., and Richard J. Wurtman. CARBOHYDRATES AND DEPRESSION; January, page 68.

Yeats, Robert S., and Ross S. Stein. HIDDEN EARTHQUAKES; June, page 48.

ARTICLES

ABSINTHE, by Wilfred Niels Arnold; June, page 112.

ACCELERATORS, PLASMA PARTICLE, by John M. Dawson; March, page 54.

AGE-OF-THE-EARTH DEBATE, THE, by Lawrence Badash; August, page 90.

AGRICULTURE, STRATEGIES FOR, by Pierre R. Crosson and Norman J. Rosenberg; September, page 128.

AMAZON, THE PAST AND FUTURE, by Paul A. Colinvaux; May, page 102.

AMPÈRE, ANDRÉ-MARIE, by L. Pearce Williams; January, page 90.

ANIMALS IN TOXICITY TESTING, ALTERNATIVES TO, by Alan M. Goldberg and John M. Frazier; August, page 24.

AQUEDUCT OF NÎMES, THE ROMAN, by George F. W. Hauck; March, page 98.

ASTROCYTES, by Harold K. Kimelberg and Michael D. Norenberg; April, page 66.

ATMOSPHERE, THE CHANGING, by Thomas E. Graedel and Paul J. Crutzen; September, page 58.

AURORA, THE DYNAMIC, by Syun-Ichi Akasofu; May, page 90.

BIODIVERSITY, THREATS TO, by Edward O. Wilson; September, page 108.

BIRDS OF PARADISE, THE, by Bruce M. Beehler; December, page 116.

CALCIUM AS AN INTRACELLULAR MESSENGER, THE CYCLING OF, by Howard Rasmussen; October, page 66.

CANCER, MULTIDRUG RESISTANCE IN, by Norbert Kartner and Victor Ling; March, page 44.

CARBON CYCLE, MODELING THE GEOCHEMICAL, by Robert A. Berner and Antonio C. Lasaga; March, page 74.

CARBON MONOXIDE AND THE BURNING EARTH, by Reginald E. Newell, Henry G. Reichle, Jr., and Wolfgang Seiler; October, page 82.

CENSUS TABULATION, THE HISTORY OF, by Keith S. Reid-Green; February, page 98.

CHANNELING OF ELECTRONS AND POSITRONS, THE, by Allan H. Sørensen and Erik Uggerhøj; June, page 96.

CHEMICAL EFFECTS OF ULTRASOUND, THE, by Kenneth S. Suslick; February, page 80.

CHILDREN OF THE GARDEN ISLAND, by Emmy E. Werner; April, page 106.

CHOROID PLEXUS, THE MAMMALIAN, by Reynold Spector and Conrad E. Johanson; November, page 68.

CLIMATE, THE CHANGING, by Stephen H. Schneider; September, page 70.

CLIMATIC CHANGE, GLOBAL, by Richard A. Houghton and George M. Woodwell; April, page 36.

COLOR PHOTOGRAPHS, THE FIRST, by Grant B. Romer and Jeannette Delamoine; December, page 88.

COLOR VISION, THE GENES FOR, by Jeremy Nathans; February, page 42.

CRYSTALS, MACROMOLECULAR, by Alexander McPherson; March, page 62.

DEPRESSION, CARBOHYDRATES AND, by Richard J. Wurtman and Judith J. Wurtman; January, page 68.

DOUBLE-BETA DECAY, by Michael K. Moe and Simon Peter Rosen; November, page 48.

EARTH'S MAGNETIC FIELD, THE EVOLUTION OF THE, by Jeremy Bloxham and David Gubbins; December, page 68.

EARTHQUAKES, DEEP, by Cliff Frohlich; January, page 48.

EARTHQUAKES, HIDDEN, by Ross S. Stein and Robert S. Yeats; June, page 48.

ENERGY USE, STRATEGIES FOR, by John H. Gibbons, Peter D. Blair and Holly L. Gwin; September, page 136.

FOSSILS OF MONTE SAN GIORGIO, THE, by Toni Bürgin, Olivier Rieppel, P. Martin Sander and Karl Tschanz; June, page 74.

FOURIER TRANSFORM, THE, by Ronald N. Bracewell; June, page 86.

FROGS, MARSUPIAL, by Eugenia M. del Pino; May, page 110.

GENE ACTIVATORS WORK, HOW, by Mark Ptashne; January, page 40.

GROWTH AND REPRODUCTION, THE GASTROINTESTINAL TRACT IN, by Kerstin Uvnäs-Moberg; July, page 78.

HARBOR SEAL, SENSORY FUNCTION IN THE, by Deane Renouf; April, page 90.

INDO-EUROPEAN LANGUAGES, THE ORIGINS OF, by Colin Renfrew; October, page 106.

INDUSTRIAL AMERICA, TOWARD A NEW, by Suzanne Berger, Michael L. Dertouzos, Richard K. Lester, Robert M. Solow and Lester C. Thurow; June, page 39.

INFORMATION MANAGEMENT, THE METAMORPHOSIS OF, by David Gelernter; August, page 66.

INHERITANCE, A DIFFERENT KIND OF, by Robin Holliday; June, page 60.

LASERS, FREE-ELECTRON, by Henry P. Freund and Robert K. Parker; April, page 84.

MANAGING PLANET EARTH, by William C. Clark; September, page 46.

MANUFACTURING, STRATEGIES FOR, by Robert A. Frosch and Nicholas E. Gallopoulos; September, page 144.

MARBLE SCULPTURE, AUTHENTICATING ANCIENT, by Stanley V. Margolis; June, page 104.

MATING OF TREE CRICKETS, THE, by David H. Funk; August, page 50.

MAYA WRITING, by David Stuart and Stephen D. Houston; August, page 82.

MEMORY STORAGE AND NEURAL SYSTEMS, by Daniel L. Alkon; July, page 42.

MESSENGER RNA, THE TURNOVER OF, by Jeffrey Ross; April, page 48.

METHANOL, THE CASE FOR, by Charles L. Gray, Jr., and Jeffrey A. Alson; November, page 108.

MICROCLUSTERS, by Michael A. Duncan and Dennis H. Rouvray; December, page 110.

MIDDLE-EAR MUSCLES, THE, by Erik Borg and S. Allen Counter; August, page 74.

MITHRAIC MYSTERIES, THE, by David Ulansey; December, page 130.

MITOTIC SPINDLE, THE, by J. Richard McIntosh and Kent L. McDonald; October, page 48.

MIXING OF FLUIDS, THE, by Julio M. Ottino; January, page 56.

NEPTUNE, by June Kinoshita; November, page 82.

NEUROGENESIS, FROM BIRD SONG TO, by Fernando Nottebohm; February, page 74.

OBSESSIONS AND COMPULSIONS, THE BIOLOGY OF, by Judith L. Rapoport; March, page 82.

OCEAN CATARACTS, GIANT, by John A. Whitehead; February, page 50.

OLDEST ROAD, THE WORLD'S, by John M. Coles; November, page 100.

OPTICAL FIBERS IN MEDICINE, by Abraham Katzir; May, page 120.

POPULATION, THE GROWING HUMAN, by Nathan Keyfitz; September, page 118.

PROCONSUL, THE HUNT FOR, by Alan

Walker and Mark Teaford; January, page 76.

QUANTUM INTERFERENCE AND THE AHARONOV-BOHM EFFECT, by Yoseph Imry and Richard A. Webb; April, page 56.

RUSSELL, HENRY NORRIS, by David H. DeVorkin; May, page 126.

SCANNED-PROBE MICROSCOPES, by H. Kumar Wickramasinghe; October, page 98.

SCIENCE ADVICE TO THE PRESIDENT, ON, by Jerome B. Wiesner; January, page 34.

SHORTEST-NETWORK PROBLEM, THE, by Marshall W. Bern and Ronald L. Graham; January, page 84.

SHUTTLE GLOW, by Donald E. Hunton; November, page 92.

SPACE, U.S. ACCESS TO, by John M. Logsdon and Ray A. Williamson; March, page 34.

SPACE, SOVIETS IN, by Peter M. Banks and Sally K. Ride; February, page 32.

SPACE COLORISTICS, by Vladimir V. Vasylutin and Artur A. Tishchenko; July, page 84.

SPIN GLASSES, by Daniel L. Stein; July, page 52.

STANFORD LINEAR COLLIDER, THE, by John R. Rees; October, page 58.

STARTING BLOCK, GETTING OUT OF THE, by Sidney N. Graybeal and Patricia Bliss McFate; December, page 61.

SUNRAYCER, LESSONS OF, by Howard G. Wilson, Paul B. MacCready and Chester R. Kyle; March, page 90.

SUPERCONDUCTORS: PROSPECTS FOR APPLICATIONS, THE NEW, by Alan M. Wolsky, Robert F. Giese and Edward J. Daniels; February, page 60.

SUPERHEAVY ELEMENTS, CREATING, by Peter Armbruster and Gottfried Münzenberg; May, page 66.

SUPERNOVA OF 1987, THE GREAT, by Stan Woosley and Tom Weaver; August, page 32.

SUSTAINABLE ECONOMIC DEVELOPMENT, STRATEGIES FOR, by Jim MacNeill; September, page 154.

SUSTAINABLE WORLD, TOWARD A, by William D. Ruckelshaus; September, page 166.

SYNAPSE FORMATION IN THE DEVELOPING BRAIN, by Ronald E. Kalil; December, page 76.

T CELLS SEE ANTIGEN, HOW, by Howard M. Grey, Alessandro Sette and Søren Buus; November, page 56.

TECHNOLOGICAL PREMINENCE, THE QUIET PATH TO, by Robert B. Reich; October, page 41.

TECHNOLOGY, EMPLOYMENT AND U.S. COMPETITIVENESS, by Richard M. Cyert and David C. Mowery; May, page 58.

TEETH AND PREHISTORY IN ASIA, by Christy G. Turner II; February, page 88.

TELEOPERATORS, by William R. Uttal; December, page 124.

TOPOBIOLOGY, by Gerald M. Edelman; May, page 76.

TRIEME SAILS AGAIN, THE, by John F. Coates; April, page 96.

VIRAL ALTERATION OF CELL FUNCTION, by Michael B. A. Oldstone; August, page 42.

VISUAL THINKING IN THE ICE AGE, by Randall White; July, page 92.

VOLCANISM AT RIFTS, by Robert S. White and Dan P. McKenzie; July, page 62.

WATER, THREATS TO THE WORLD'S, by J. W. Maurits la Rivière; September, page 80.

WATERWEED INVASIONS, by Spencer C. H. Barrett; October, page 90.

WEAPONS IN SPACE, TESTING, by Ashton B. Carter; July, page 33.

YELLOWSTONE FIRES, THE, by William H. Romme and Don G. Despain; November, page 36.

ZEOLITES, SYNTHETIC, by George T. Kerr; July, page 100.

THE AMATEUR SCIENTIST

Balloon?, Why are the first few puffs the hardest when you blow up a? December, page 136.

Catastrophe optics, A drop of water becomes a gateway into the world of? September, page 176.

Colors seen in the sky offer lessons in optical scattering, The? January, page 102.

Hele-Shaw cell and watch bubbles playing tag in a viscous fluid, How to build a? October, page 116.

Holograms viewable in white light, How to stop worrying about vibration and make? May, page 134.

Neon tube, Colored segments of a grid can shed a diffuse glow like the light from a? November, page 116.

Photograph records have in common with windshield wipers?, What do? July, page 106.

Planck-mass accelerator in your solar system, How to build a? April, page 112.

Rock climbing, or surviving the ultimate physics exam, The mechanics of? June, page 118.

Swing going: a first lesson in the mechanics of rotation, How to get the playground? March, page 106.

Traffic, How to analyze the shock waves that sweep through expressway? August, page 98.

Wheels be locked or should the braking be controlled?, In an emergency stop, should a car's; February, page 104.

COMPUTER RECREATIONS

Biomorphs on Truchet tiles, served with popcorn and snails, Catch of the day? July, page 110.

Cellular universe of debris, droplets, defects and demons, A? August, page 102.

Core War, Of worms, viruses and? March, page 110.

Evolution: wherein bugs learn to hunt bacteria, Simulated? May, page 138.

Mandelbrot set aboard the Mandelbus, A tour of the? February, page 108.

Matter fabricator provides matter for thought, A? April, page 116.

Microgolf game gives professionals and amateurs an equal chance for a hole in one, A? November, page 120.

Minds, machines and metaphysics, A Pandora's box of? December, page 140.

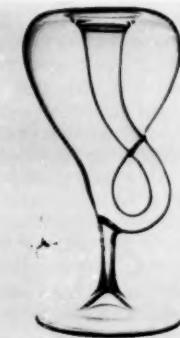
People puzzles: theme and variations? January, page 106.

Programmed prose and prosody, A pot-pourri of? June, page 122.

Tinkertoy computer that plays tic-tac-toe, A? October, page 120.

Turing machines and tur-mites make tracks on a plane, Two-dimensional? September, page 180.

THE KLEIN BOTTLE



A mathematical-topological, single surfaced objet d'art. Made after Felix Klein, (who assembled two mobius surfaces, a left and a right, to form a single surfaced 3 dimensional object). Hand blown in glass by Dr. Wm. D. Clark III. A limited edition. Size 9 inches tall. Price \$200.00 plus \$15.00 for insurance, postage and handling.

FOUR-ZERO CO.
Box 634, Unit 12
El Segundo, CA 90245
(213) 615-0734